

ABSTRACT OF THE DISCLOSURE

A signal processing method for a digital signal comprising
 5 the steps of: establishing a Yule-Walker equation having the
 following form by using a matrix that includes, as
 components, the elements of a Galois field $GF(2^m)$, and a
 vector that includes, as components, the elements of the
 Galois field $GF(2^m)$

$$10 \begin{pmatrix} S_0 & S_1 & \cdots & S_{l-1} \\ S_1 & S_2 & \cdots & S_l \\ \vdots & & \ddots & \vdots \\ S_{l-1} & S_l & \cdots & S_{2l-2} \end{pmatrix} \begin{pmatrix} \Lambda_1^{(l)} \\ \vdots \\ \vdots \\ \Lambda_1^{(l)} \end{pmatrix} = \begin{pmatrix} S_1 \\ \vdots \\ \vdots \\ S_{2l-1} \end{pmatrix}; \text{ employing Jacobi's formula}$$

to obtain the solution of the above equation by the
 calculation of determination of symmetric matrices;
 determining the number of errors to be the maximum matrix
 size that corresponds to the obtained solution that is not
 15 zero; and determining whether the number of errors equals
 the maximum number of correctable errors.